—will be represented by samples grown in India. The economic plants introduced into India must necessarily form an important feature in its trade museum. Amongst trees *Eucalypti*, the baobab, cork oak, mahogany, have not as yet produced marketable results; but tea, cinchona, senna, nutmegs, pepper, cinnamon, cloves, barley, tapioca, the Maranta arrowroot, Orleans and Egyptian cotton, with their hybrids, Carolina rice, &c., are a few of the instances in which the successfully introduced plants have added, or promise to add, considerably to the exports of India. In the development of the natural resources of so vast a region undoubtedly much remains to be accomplished. Passing through this room, a great number of such unknown, undeveloped, or unappreciated objects will not fail to impress themselves upon the attentive observer. Surely with such vast forests, and a system of conservation so steadily pursued, more ornamental and furniture woods are destined to be exported than yet find their way to the coast; and there are at least sound timbers little inferior to teak, such as *Hopea odorata* is said to be, which require only to be more widely known to be more generally appreciated. In resinous products the European markets are as yet but little indebted to the forests of India, but the copals here shown from *Hopea odorata* and *Hopea micrantha* give considerable promise. The wood oils produced by several species of *Dipterocarpus*, and the Burmese lacquer derived from *Melanorrhœa usitatissima*, might be obtained in large quantities, and yet hitherto no practical application for them in this country has been discovered. The latter is employed to a very great extent in Burmah for lacquering furniture and small wares, but it is unsuited for the English process.

Amongst the objects in this room of interest to the botanist rather than to the general public may be cited the Tabashir, a siliceous secretion from the joints of the bamboo; the curious horn-shaped galls called Kakrasinghee, produced on a species of *Rhus*; manna obtained from *Tamarix indica* in the North-west Provinces, and a kind of manna named Shirkhist from the Punjâb, attributed to the *Fraxinus floribunda*; the resin somewhat resembling Elemi, derived from *Boswellia Frereana*, which the late Daniel Hanbury considered one of the ancient kinds of Elemi, but which is disputed on good grounds by Dr. Birdwood; narcotic Indian hemp in different forms, including the Churrus or hemp resin, and various confections into which it enters; the clearing nuts which are employed by natives in clearing water, and are the seeds of a species of *Strychnos*. To which may be added the paper-like bark of *Betula bhojpatra*, used in Northern India as a wrapper for cigars; the bark of one of the species of *Daphne*, from which the renowned Nepal paper is made, and the singular natural sacks made of the bark of *Antiaris saccidora*.

The models of native implements associated with the respective "products," drawings and photographs of the mode of using them, the copious illustrations of plants from whence useful substances are derived, and especially the series of photographs of forest trees, are calculated to increase the public interest in this collection, and add to its usefulness, although these features are not yet developed to the extent or in the systematic manner which they are intended to assume.

Rooms Nos. 4 and 5 contain the zoological collections, under the superintendence of the assistant curator, Mr. F. Moore. In it are comprised the various collections of Mammals, Birds, Insects, &c., contributed by officers of the old East India Company, whose names have been distinguished by their labours in this branch of natural history, of whom may be mentioned Buchanan, Cautley, Finlayson, Hodgson, Horsfield, M'Clelland, Raffles, Roxburgh, Russell, Wallich, &c.

Commencing with the Mammals, in Room No. 5, the various tribes have been so arranged in the several cases that the visitor at a glance may see the principal species in each group. From want of space, however, many of the larger species are at present precluded from being exhibited, and it is proposed to substitute photographs and other illustrations of them.

Following in order come the Birds, which have also been arranged in a similar manner, each group or tribe being represented by prominent and characteristic species.

In this room are also deposited the cabinets of Insects, several groups of which are provisionally exhibited in the window recesses, as well as an unique collection of Indian forest insect pests.

The tribes of Reptiles and Fish are shown in Room No. 4, and, though at present but few species are represented, this section will shortly be enriched by the extensive and valuable collections formed by the Inspector-General of Indian Fisheries.

Supplemental to these groups, which are arranged in a scientific series, these rooms contain an important collection of economic animal products, including an unique series of the silk-producing insects, lac, honey-yielders, and gall-making insects of India, and their several valuable products, as well as groups of pearl-oysters, chanks, wools, plumes, horns, ivory, &c.

For a series of fossils and plaster casts from the Cautley and Falconer collections, as well as the collections of shells and Crustacea, no cases have as yet been erected for their reception.

THE BIRDS OF GREECE[*]

THE third part of Mommsen's Griechische Jahreszeiten is devoted to an article upon the birds of the classical land, to our better knowledge of which Herr Mommsen's work is intended to contribute—an article which will be quite as interesting to naturalists as to the scholars for whom the periodical in question is primarily designed. The memoir is based upon the notes and observations made during his long residence in Greece and the adjoining parts of the Levant by Dr. Krüper, a naturalist well known to all students of European ornithology for his accurate and painstaking investigations of the birds of those countries, and especially for his discoveries of the breeding haunts of some of the rarer species. Dr. Krüper's notes have been further augmented in value by the co-operation of Dr. Hartlaub, of Bremen, one of the first of living ornithologists, who has contributed the references to the previous authorities upon each species, and a list of the existing memoirs relating to the same subject, besides adding many extracts from former writers to Dr. Krüper's observations.

The total number of species of birds noticed by Dr. Krüper in the present memoir is 358, on each of which notes of a more or less extended character are given. The arrangement adopted for the sake of convenience is that of Lindermayer's "Vögel Griechenlandes," published at Passau in 1860, and hitherto generally recognised as the best authority upon Grecian ornithology. Dr. Krüper's memoir must now, however, be referred to as more complete, and contains many recent additions to Lindermayer's list. We observe, however, that the work extends into limits which cannot (at any rate at present) be called Greece in its modern sense, as Dr. Krüper's recent discoveries in the neighbourhood of Smyrna of such birds as *Picus syriacus*, *Sitta kruepeni*, and *Cossypha gutturalis* are introduced into it. It is, however, a matter of great convenience to ornithologists to have Dr. Krüper's notes upon the Birds of Greece and the Levant, many of which have been scattered through the pages of half a dozen periodicals, reduced into order under such excellent superintendence. Dr. Hartlaub's

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[*] Griechische Jahreszeiten; unter Mitwerkung Sachkundiger, herausgegeben von August Mommsen. Heft iii. Schleswig, 1875.

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numerous references render the volume of still greater value, and make it one that no naturalist who is interested in the Birds of Europe should omit to consult.

NOTES

ON July 5 the Sub-Wealden boring had reached the depth of 1,400 feet, and it is expected that this week it will have reached 1,500 feet. But this will have quite exhausted the funds of the Committee, and Mr. Henry Willett appeals for more subscriptions. "It cannot be too widely known," he states, "that unless 2,000 feet be reached, the solution of the problem is as far off as ever. We have met with nothing to show that Palæozoic rocks, as anticipated, may not lie at the estimated depth." We are inclined to think that Mr. Willett is too desponding in thinking that failure "seems to be imminent" from want of funds. We are sure there are many wealthy men, who, if the importance of the undertaking were properly represented to them, would come to the rescue and advance the trifling sum necessary for the completion of the experiment.

ON Saturday last, Sir George B. Airy, the Astronomer Royal, was entertained at the Mansion House on the occasion of the freedom of the City having been voted to him. A considerable number of well-known scientific and other gentlemen were present.

THE Royal Commission on Vivisection held their first regular meeting on Monday. The offices of the Commission are at 13, Delahay Street, Westminster.

IN connection with the recent volcanic eruptions in Iceland, which have caused great loss and much suffering to the inhabitants, the *Times* publishes the following abstract of a report by the Very Rev. Dean Sigurd Gunnarsson, dated Hallormsstad, in Múlasýsla, April 24, 1875:—"On Easter Monday, early in the morning, loud rumbling noises were heard to the westward, and apparently travelled towards the north-east, in the direction of the mountain ranges bounding the valley of Fljótsdalshérad to the north. Presently the sounds turned backward along the southern mountains as well. The air was heavy and jet black towards the north and north-east. About nine o'clock whitish-grey scoriaceous sand began to fall from the sky, the particles averaging the size of a grain, but in shape longer. The dark column moved on nearer and nearer, and the darkness rapidly increased, while the scoriaceous hail thickened at the same rate. A full hour before noon candles had to be lighted in the houses, and at noon the darkness was as dense as that of a windowless house; even abroad the fingers of the hand could not be distinguished at the distance of a few inches from the eye. This pitch darkness lasted for about an hour. During the dark all glass windows appeared like mirrors to those inside, reflecting the objects on which the light fell as if they had been covered outside with a coat of quicksilver. For four consecutive hours it was necessary to have lighted candles in the houses. During all that time the ashes and the sand were falling thick and fast. Lightning and claps of thunder were at the same time seen and heard in rapid succession, and the earth and everything seemed to tremble again. The air was charged with electricity to such an extent that pinnacles, and staff-pikes of iron when turned into the air, and even one's hands when held up, seemed all ablaze. But the thunder differed from ordinary claps in this, that it travelled in rapidly-repeated echoes across the skies. When the darkness wore off the fall of the ashes abated. The dark column now moved inland towards the upper valleys; but, being there met by a counter current of air, it remained at first stationary for a while, and afterwards moved slowly down country again along the valleys, so that once more the daylight was changed into dusk, which was accompanied by the fall of fine ashes. After the fall the earth was covered with a layer of ashes and scoriæ from 1½ inches to 8 inches deep; coarsest where it lay thickest, in many cases exhibiting pumice boulders twice as large as the fist. In these places the ashes fell hot as embers on the ground. At first the fall of the ashes was accompanied by a foul sulphurous stink, which, however, very soon vanished. When the ashes had any perceptible taste it was that of salt and iron. For three days after the fall still weather prevailed, and the ashes lay undisturbed on the earth. Before the fall of the ashes the land was snowless and pasture plentiful; but after it not a creature could be let out of doors, and the sheep, if they were let out, would run as if mad in all directions. On the fourth day a pretty stiff south-west gale blew the ashes away from the hillocks and mounds, except the finest part, which remained on the sward, presenting the appearance of a compact scurf. But what little good this gale might have done was undone the next day by a wind blowing from north-west."

THE *New York Tribune* publishes additional information respecting the disastrous earthquake in South America. The locality where the earthquake occurred is the great coffee district of South America. The region affected by the shocks covers five degrees of latitude, and is 500 miles wide. The shock extended in a north-east direction along the northern range of the Andes. It was felt first very perceptibly at Bogota, the capital of New Granada, thence seemed to travel north, gathering intensity as it advanced, until it reached the south-east boundary line of Magdalena, where the work of destruction began, continuing as it advanced along the eastern boundary of Magdalena, following the line of the mountain range, and destroying in part or whole the cities of Cucuta, San Antonio, El Bosario, Salazar, San Cristobal, San Cayetano, and Santiago. The first premonition of the terrible visitation occurred on the night of May 17, when a strange rumbling sound was heard beneath the ground, although no earthquake occurred. It travelled in the direction afterwards taken by the earthquake, and lasted only a few minutes. On the morning of May 18 a terrible shock occurred. It suddenly shook down the walls of houses, tumbled down churches and the principal buildings, burying the citizens of the place in the ruins. Another shock completed the work of desolation. Three more shocks followed of equal intensity, but there appears to be no evidence that there were any openings in the earth, which on similar occasions have engulfed buildings and inhabitants, at least not in Cucuta. The shocks, with lesser force, however, seem to have been felt throughout the whole region of the earthquake for two days afterwards, extending to Cartagena and the western sea-coast. To add to the horror of the calamity, the Lobotera Volcano suddenly began to shoot out lava in immense quantities, or, as a correspondent writes, "it sent out a mass of molten lava in the form of incandescent balls of fire into the city."

DETAILS concerning Mr. Giles's exploration of the country lying about 100 miles from the coast-line of the great Australian Bight have come to hand (see vol. xii. p. 135). The country he examined seems almost useless for pastoral purposes, the greater part of it being dense scrub, "heavy red sand-hills with thick mallee, mulga, acacia, Grevilles, casuaxina, hakea, and spinifex." For 200 miles the greatest suffering was endured from the want of water, the horses all dying, and the party only being saved by the camels; Mr. Giles speaks of the latter as "wonderful, awe-inspiring, and marvellous creatures." He just touched the edge of Lake Torrens, and from what he has seen he judges that there exists a vast desert of scrub of a triangular form, the base of which is at or near the western shores of the lake, and the sides running north-westerly from the southern foot, and most probably west from the northern cone to an apex at no great distance from his starting-point, Youldeh. It consists of two

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